

Application No.: 10/812,015**Docket No.: 2336-255****AMENDMENTS TO THE CLAIMS:**

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (currently amended) A GaN-based semiconductor light emitting diode comprising:

a substrate on which a GaN-based semiconductor material is grown;

a lower clad layer formed on the substrate, and made of a first conductive GaN semiconductor material;

an active layer formed on a designated portion of the lower clad layer, and made of an undoped GaN semiconductor material;

an upper clad layer formed on the active layer, and made of a second conductive GaN semiconductor material; and

an alloy layer formed on the entire upper surface of the upper clad layer, and made of a hydrogen-storing alloy.

2. (original) The GaN-based semiconductor light emitting diode as set forth in claim 1,

wherein the alloy layer is made of one hydrogen-storing alloy selected from the group consisting of Mn-based hydrogen-storing alloys, La-based hydrogen-storing alloys, Ni-based hydrogen-storing alloys and Mg-based hydrogen-storing alloys.

3. (original) The GaN-based semiconductor light emitting diode as set forth in claim 2,

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wherein the Mn-based hydrogen-storing alloy is MnNiFe or MnNi.

4. (original) The GaN-based semiconductor light emitting diode as set forth in claim 2,

wherein the La-based hydrogen-storing alloy is LaNi₅.

5. (original) The GaN-based semiconductor light emitting diode as set forth in claim 2,

wherein the Ni-based hydrogen-storing alloy is ZnNi or MgNi.

6. (original) The GaN-based semiconductor light emitting diode as set forth in claim 2,

wherein the Mg-based hydrogen-storing alloy is ZnMg.

7. (currently amended) A GaN-based semiconductor light emitting diode comprising:

a substrate on which a GaN-based semiconductor material is grown;

a lower clad layer formed on the substrate, and made of a first conductive GaN semiconductor material;

an active layer formed on a designated portion of the lower clad layer, and made of an undoped GaN semiconductor material;

an upper clad layer formed on the active layer, and made of a second conductive GaN semiconductor material; and

an alloy layer formed on the upper clad layer, and made of a hydrogen-storing alloy;

The GaN-based semiconductor light emitting diode as set forth in claim 1;

wherein the alloy layer has a thickness of 10Å to 100Å.

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8. (original) The GaN-based semiconductor light emitting diode as set forth in claim 1, further comprising:

a first metal layer formed on the alloy layer, and made of one metal selected from the group consisting of Au, Pt, Ir and Ta.

9. (original) The GaN-based semiconductor light emitting diode as set forth in claim 8,

wherein the first metal layer has a thickness of 100Å or less.

10. (original) The GaN-based semiconductor light emitting diode as set forth in claim 8,

wherein the first metal layer has a thickness the same as or larger than that of the alloy layer.

11. (original) The GaN-based semiconductor light emitting diode as set forth in claim 1, further comprising:

a second metal layer formed on the alloy layer, and made of one metal selected from the group consisting of Rh, Al and Ag.

12. (original) The GaN-based semiconductor light emitting diode as set forth in claim 11,

wherein the second metal layer has a thickness of 500Å to 10,000Å.

13. (withdrawn) A method for manufacturing a GaN-based semiconductor light emitting diode comprising the steps of:

(a) preparing a substrate on which a GaN-based semiconductor material is grown;

(b) forming a lower clad layer, made of a first conductive GaN semiconductor material, on the substrate;

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(c) forming an active layer, made of an undoped GaN semiconductor material, on the lower clad layer;

(d) forming an upper clad layer, made of a second conductive GaN semiconductor material, on the active layer;

(e) removing designated portions of the upper clad layer and the active layer so as to expose a portion of the lower clad layer; and

(f) forming an alloy layer made of a hydrogen-storing alloy on the upper clad layer.

14-32. (canceled)

33. (new) The GaN-based semiconductor light emitting diode as set forth in claim 1, wherein the alloy layer has a thickness of 10Å to 100Å.

34. (new) The GaN-based semiconductor light emitting diode as set forth in claim 2, wherein the Ni-based hydrogen-storing alloy is ZnNi.

35. (new) The GaN-based semiconductor light emitting diode as set forth in claim 1, wherein the alloy layer has a meshed structure.

36. (new) The GaN-based semiconductor light emitting diode as set forth in claim 1, further comprising:

a metal layer on an upper surface of the alloy layer; and

an electrode layer on an upper surface of the metal layer;

wherein said electrode layer occupies only a middle region of the upper surface of said metal layer without covering a peripheral region of the upper surface of said metal layer, said peripheral region surrounding said middle region.

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37. (new) The GaN-based semiconductor light emitting diode as set forth in claim 7, wherein the alloy layer is made of one hydrogen-storing alloy selected from the group consisting of ZnNi and ZnMg.

38. (new) The GaN-based semiconductor light emitting diode as set forth in claim 7, further comprising:

a metal layer on an upper surface of the alloy layer; and

an electrode layer on an upper surface of the metal layer;

wherein said electrode layer occupies only a middle region of the upper surface of said metal layer without covering a peripheral region of the upper surface of said metal layer, said peripheral region surrounding said middle region.

39. (new) The GaN-based semiconductor light emitting diode as set forth in claim 38, wherein each of the alloy layer and the metal layer has a meshed structure.

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